GARDEN AND FOREST.

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More Forest-reservations.

THE authority to set apart forest-lands as permanent reservations with which the President of the United States was endowed less than a year ago, enjoins upon him the duty of selecting portions of the national domain where it is most desirable to retain the forest-cover. There can be no question, therefore, that he will welcome any suggestions from well-informed and public-spirited citizens in regard to tracts of forest whose preservation may seem most essential to the general welfare. We spoke of it as a gratifying fact in the early autumn of last year that a memorial naming and describing at length five sections which seem suitable for public reservations had been presented to the President by persons of well-known scientific and practical attainments. We gave the descriptions of some of these tracts, with the reasons offered for selecting them. The first was the Flat Head and Marias River Reservation, originally proposed in a bill by Senator Edmunds some eight years ago. The second was the Tulare Reservation, which, like the first, covered an area of 7,000 square miles. It lies on the western slope of the Sierra, and includes the eastern watershed of the San Joaquin River and the streams which flow into Tulare Lake. It was asked for by the California Academy of Science and a convention of the citizens of four of the counties of that state. The Pecos River Reservation, advocated by the Surveyor-General of New Mexico and many other citizens, is on the Las Vegas and Santa Fé ranges. Pike's Peak and its slopes, including an area of some 350 square miles, was the next reservation asked for in order to preserve from extinction the forest-area which now furnishes timber and fuel for 30,000 people, and the water indispensable for irrigating hundreds of thousands of acres of land, besides supplying many communities in a place where the husbanding of water is a trying necessity. The proposed Minnesota Reservation covers some 6,000,000 acres, and includes the sources of the Mississippi and the Red River of the North.

The President has already enlarged the boundaries of the Yellowstone, and has established the White River Reservation in Colorado, with an area of 2,000 square miles. Special agents, too, have been detailed by the Secretary of the Interior to make examinations of the other tracts and report upon their suitability for the purpose indicated. There seems to be a reasonable probability that in some of these cases the President will exercise his power, although to some of them opposition has been made by interested persons. This is especially true of the Minnesota tract; but there can be little doubt that the public opinion of the state would strongly favor the reservation if it was understood that no agricultural land is to be withheld from settlers, and that the people are not to be deprived of the products of the forest. On the contrary, the forest is to be saved from wasting fire and held to furnish continuous supplies under economical management, instead of being stripped at once of its valuable timber and left to be burned over and abandoned.

Another reservation to which we have not before referred at length is asked for by many citizens of North Dakota, including the Superintendent of Irrigation and Forestry. It embraces the elevated lands in Buttineau and Rulette counties, known as the Turtle Mountains and adjacent to the Canadian boundary. This tract consists of a plateau several hundred feet above the surrounding plains, cut near its edges by deep coulées and rising in irregular mountains at their highest point to 2,500 feet above the sea-level. On the borders of this tract are numerous springs, the fountains of streams which water the plains; and many lakes are found in the centre of the tract. Most of it is covered by a mixed growth of Oak, Ash, Elm, Cottonwood, Box Elder, Willow and other trees; but owing to the fires which run through it and the indiscriminate cutting, the forest is in very imperfect condition. It is asked that what remains of this forest may be preserved in order to furnish perpetually wood-products for the surrounding treeless region; to furnish seedlings for tree-planting in the prairies; to retard the melting of the snow and water, and thus prevent spring freshets on the plain; to sustain a water-supply during summer, and to form a protection against the cold winds of the north and the drying winds of the west. It is the only wooded area of any extent in that country which remains in the hands of the Government, and it would be of priceless value as a place of recreation for the people of the neighboring plains and adjacent towns and cities.

At the recent Forestry meeting, among other reservations asked for was one known as "Lost Park." It was advocated by Colonel Ensign, Forest Commissioner of Colorado, and many of the leading citizens of that state. It is in central Colorado, some forty miles south-west of Denver, and forms a part of the water-shed of the South Platte River. It includes about 500 square miles, and ranges from 6,000 to 12,400 feet in altitude above the sea. It is a mountain-region with small valleys, some of the ranges being rugged and precipitous and rising occasionally above the timber-line. The northern slopes of the mountains are generally wooded, and there are small areas of merchantable timber standing there, while the southern slopes are usually devoid of tree-growth. No minerals of any value are known to be within its boundaries. A few entries have been made within the tract, some small saw-mills built, and some cutting has been done for charcoal and other purposes. The settlements along the streams which flow out of the tract need all the water for irrigation that can possibly be secured, and if the timber can be guarded from fire for some years the northern slope will speedily be reclothed with forest.

The Crater Lake Reservation is on the Cascade Mountains, in south-west Oregon, about the source of the Umpaqua, Rogue, Klamath and Des Chutes rivers. The whole area to be preserved is 360 square miles. It ranges in height from 4,000 to 9,000 feet above the sea, and includes several lakes at an altitude of 7,000 feet. An extinct vol-

cano, the crater of which is now occupied by a beautiful lake, gives the name to the reservation. Most of the tract is timbered, some of it densely, but on account of frequent fires much of the young growth has been destroyed and it is threatened with speedy denudation. If fire and flocks were excluded the young growth would soon afford a dense shade for the conservation of snow and moisture. The deep snow-falls of winter linger in banks late into the summer, and waters from these melting drifts form the streams which flow in all directions from the region. Senator Dolph introduced a bill for the reservation of this tract in 1889, and his project is endorsed by many of the prominent citizens of Oregon.

There is little danger that the President will be too liberal in the exercise of his power to set apart reservations, and we have to confess the fact that after they are set apart there is no way of defending them from invasion. Mr. Fernow has suggested a plan for their management, and although past experience does not encourage the belief that any such elaborate system will be speedily adopted by Congress, still it is the duty of all who are interested in these matters to work as if all things were possible and to trust in the growing enlightenment of the people of the country on this important subject. We may be nearer a rational forest-policy than we know, but until such a policy is inaugurated it is worth while to take advantage of every possible means to make the best of the situation. Mr. French, in the address from which we quote elsewhere, suggests that a school of forestry be established at West Point, so that officers of the army shall be instructed in as much of the science as is needed to make them competent managers of these reservations. But even without such a school it is to the army that we turn for the protection of public property. Detachments have already been employed in protecting the Yellowstone and the Big Trees. This is the one constabulary force in the country which is thoroughly organized, which has esprit de corps, which is free from political influence, and to which we can look for the courage and trained ability to enforce obedience. It is certainly worth while to consider whether the army is not altogether the best means at hand, not only for the immediate protection of these reservations, but for policing all the public forests of the country until some permanent forest-policy is established.

An Appropriate Decoration.

THE plant of Helianthus orgyalis, growing against the wall of a house, as represented in the accompanying figure (page 32), is a charming example of the pleasing effect produced by placing herbage directly in contact with a building to link it to the ground.

This tall Sunflower, with its lanceolate leaves and small single blossoms, has a habit of growth that makes it singularly appropriate and agreeable in such a situation, and the lateness of its blossoming makes it a delightful adjunct to a house in autumn, when earlier flowers have perished. The dwelling in the figure is a long, low building, constructed of white plaster below, and of weather-darkened shingles above. Everywhere it is tied to the broad green lawn from which it springs by ropes and garlands of vines, which climb above the roof of the one-storied studio at one end, and drape the supports of a veranda at the other, in a way which makes the house grow as naturally from the velvet turf as a tree or shrub.

Ivy and Virginia Creeper, the small-leaved flowering Grape, and other graceful climbers weave over the building a drapery of foliage that flows in charming curves to the ground, and adds to the picturesqueness of the whole construction, which in itself has an air of shelter and sweet home-likeness that make one eager to enter its arched doorways, or to linger under the roof of the wide outdoor room, with its mosaic floor and vine-wreathed supports, which forms so agreeable a feature of the dwelling.

Branching overhead are stately Maples, and from between their straight trunks and low-growing foliage are beautiful glimpses of a bay, with boats and islands, and a stretch of Beverly shore. In the distance, across the lawn, one catches sight of another white villa with patio and balcony, supported by Moorish arches like a home in Spain.

The little Sunflowers by the window, with their lance-like leaves and golden shields, stand like gallant sentinels, ready to protect the household. The rough surface of the plaster bears soft, waving shadows on its snowy surface, and throws the foliage into high-relief. More shadows are thrown by the overhanging eaves over which the blossoms tower, nodding gallantly in the wind, while some of them shine under the gutters, or peep in at the windows, where the irregular panes are set in leaden curves, representing the shape of the Fire Lily, the totem of this artistic home. On the opposite front of the house is the entrance, where on either side and above the shadowy door-way are bas-reliefs modeled in the plaster, some of them representing the same Lily in majestic hues. Here against a curve of the white wall shine the glossy leaves of an Orange-tree, laden with its golden fruit, again suggestive of summer climes, and softer skies than these.

Thus, by vine and herbage, flower and fruit, the dwelling is made to seem a growth rather than a construction, and the value of such connection of house and land is made emphatic. By such means hardness of contrast is banished, and sharpness of outline toned into agreeable mystery, and true picturesque effect obtained.

To produce this unity should be the effort of every one who has even a few feet of land around his dwelling available for planting green things to cling about the foundations, and mask their rigid lines from view. Vines and plants for summer, low-growing evergreens for winter effect, are all beautiful and appropriate, and their use should never be neglected by those who would make their homes attractive and graceful at all seasons.

The Jubilee Year of Kew Gardens.

THE first number of the *Gardeners' Chronicle* for 1892 contains an article on the Royal Gardens at Kew, which have just entered upon their second half-century of useful life. After noting with justifiable self-gratulation that Dr. Lindley, the first editor of the paper, and Sir Joseph Paxton, one of its founders, were largely instrumental in the reorganization of the gardens, the article gives an instructive account of the character of the work of this great establishment. Just now, when an effort is being made to secure a botanic garden for this city, the subject has a special interest for American readers, who ought to have clear ideas about the scope of such an establishment and of the experience and attainments which must be possessed by its directors if it attains anything like a reasonable measure of success. We therefore reproduce the greater part of the article below :

Lindley, in his report to the Government of the day in 1838, said : "A national garden ought to be the centre round which all minor establishments of the same nature should be arranged ; they should all be under the control of the chief of that garden, acting in concert with him, and through him with one another, reporting constantly their proceedings, explaining their wants, receiving their supplies, and aiding the mother country in everything that is useful in the vegetable kingdom. Medicine, commerce, agriculture, horticulture, and many valuable branches of manufacture would derive benefit from the adoption of such a system. From a garden of this kind Government would be able to obtain authentic and official information on points connected with the founding of new colonies ; it would afford the plants there required without its being necessary, as now, to apply to the officers of private establishments for advice and assistance."

Sir W. Hooker's appointment dated from April 1st, 1841. By his energy, knowledge and courtesy he speedily effected much-needed reforms. His large correspondence with all quarters of the globe, and which had been formerly turned to good account when in Glasgow, were even more fruitful at Kew. On August 9th, 1841, the sub-editor of this journal visited

the garden, and in his remarks at p. 535 of our volume for that year it is recorded that persons, provided they did not touch the plants, were permitted to walk through the grounds without attendance! that there had been a large increase of "respectable company," and that neither plants nor flowers had been injured by the visitors.

Other details are given as to the changes in progress, and especially as to the unrivaled collection of Proteaceæ, a group of plants, by the way, better represented fifty years ago than now. The changes effected by Sir W. Hooker were again adverted to at p. 123 of our volume for 1842, where it is recorded that "the well-directed energy of Sir W. Hooker, assisted by a judicious liberality on the part of the Commissioners of Woods and Forests, will speedily place Kew where it ought to be, and once was—at the head of the botanical establishments of Europe."

It is not our intention on this occasion to advert in detail to the further progress of Kew, its great extension, the gradual improvements in general cultivation, and in all departments, under the direction of Sir William and of Sir Joseph Hooker, and latterly of Mr. Thiselton-Dyer; the new houses constructed, the museums built, the herbaria and libraries formed, the laboratory and picture-gallery established; nor need we do more in passing than allude to the extraordinary literary and scientific activity evinced in the numerous substantial volumes that have emanated from Kew. The Colonial Floras, for instance, were projected by Sir William Hooker. Some are completed, others, like the tropical and extra-tropical African floras, will, we trust, speedily be resumed; while the unrivaled experience and the undaunted energy of Sir Joseph Hooker have brought the Flora of British India nearly to completion.

To the general public Kew is a pleasure-garden merely. It is that, of course; but it is far more. It is, and has been for half a century, what Lindley wished it to be, the centre of botanical activity—activity not only in purely scientific botany, but in garden-botany in particular. It has been a main agency in the collection and diffusion of knowledge of all kinds relating to botany, and has ensured the cultivation and dispersal of economic plants of all kinds in our colonies. We have often had occasion to record, with patriotic pride, the great things for humanity which have been effected through the medium of Kew. Commercial men and practical statesmen are not very likely to feel much enthusiasm about botany as a science —they look upon it, if at all, as a harmless pastime; but when they see—as they may at Kew—what it is capable of and what it has done for the benefit of mankind, they naturally look upon the garden as an institution worthy of their support. The cultivation of Cinchona, Tea, India-rubber, Liberian Coffee, represents only a few of the industries which have been established and fostered in India and our colonies chiefly through the agency of Kew.

All that has been done at Kew in the way of gardening, systematic study, physiology or economic botany, has been done in accordance with the letter and the spirit of the recommendations made by Lindley, but modified and extended by successive directors; and the latest advances—that of federating the several colonial botanic gardens, and that of establishing botanical departments in the several presidencies of India and in the colonies—are in strict accordance with the general plan. Kew has thus long been the centre of botanical energy in almost all departments. Its steady progress and its present condition are matters which excite the admiration of the most competent judges. We have lately had an illustration of this in the glowing testimony as to the condition of and the work at Kew afforded to us in conversation with the directors of two of the most important gardens in the world—that of Paris and the Harvard Arboretum.

In some points Kew still needs extension and improvement. The subject of the diseases of plants, for instance, is vast enough and important enough to demand a separate staff of microscopists and entomologists with a small space set apart as an experimental area. The laboratory and library would be invaluable adjuncts to such a department. Systematic and comparative study of the minute anatomy of plants is also a need of the times that might be largely supplied at Kew. Anatomists would not only find there what they want in the way of material, but they might also profit by imitating the systematic orderly procedures and comparative methods of those who devote themselves to herbarium botany, as it is called. The co-operation of the two classes of workers is a thing much to be desired, and we do not know where it could be better carried out than at Kew.

In the garden itself it is recognized that the cultivation, as perfectly as circumstances will allow, of specimens illustrative of botanical structure and affinities, and of such as are of horticultural and economic importance, is preferable to the accumulation of so-called complete collections of specimens which cannot be properly grown or displayed. Such plants would be more appropriately housed in the herbarium, while their portraits might find a place in the picture-galleries. For strictly horticultural purposes, numerous and varied trials should be made of new plants to ascertain their value; and not only of new plants, but also of some at least of the vast number at present left unutilized by the gardener. Ordinary bedding-stuff cannot, of course, be dispensed with in a public garden; but we do not want to see at Kew what we can see in any of the parks or in the back-garden of any suburban villa residence. What we see at Kew should be—and to a large extent it already is—of educational value as well as agreeable to the eye.

One of the chief wants of Kew at present is suitable provision for plants requiring an intermediate temperature, between that of the stove and that of the ordinary greenhouse or conservatory, one wherein specimens of many of the economic plants of sub-tropical lands may be grown. Much of this kind of material is already to be found in the smaller houses, chiefly in the T-range; but the plants, owing to the smallness of the houses, and to their growth in pots of no great size, do not convey to the minds of those seeking information their true characteristics, and persons interested in commerce go away from their inspection with feelings of disappointment.

By the completion of the temperate-house, the need we have alluded to will be supplied, and space will be found for most of the economic subjects whose cultivation in our colonies and crown-lands is meeting with so much attention. The plants, being planted out in borders instead of cramped and stunted in pots, will attain to fuller development and show their characteristics more perfectly, and for these reasons the enlargement of this house would be altogether an appropriate commemoration of the jubilee year of Kew gardens.

New England Parks.

THE ARNOLD ARBORETUM.

THE Arboretum is not properly a park, according to the commissioners, but as it is a part of the Boston Park system, I take the liberty to treat it as a pleasure-ground rather than as a school of dendrology, for, indeed, information is here administered so delightfully that one is hardly conscious of being at school at all, and gives himself over to the picturesque effects of this tree-garden, which yearly grows more beautiful and attractive.

Those dwellers in Boston who spend their summers in the country and only drive about the environs of their city in spring and fall, hardly get an idea of what the Arboretum is at midsummer, when all its shrubs are in full leaf and blossom, its trees in their best and fullest foliage, and its evergreens showing their finest and most vigorous color, and at any season when people visit it it would be well if they could be made to realize that this beautiful spot is still in its infancy, that it is slowly growing to perfection, and that all that is unfinished and unsightly about it now is but the deep-laid foundation of a great and enduring monument to the generosity of the founders of this wonderful garden, and to the learning and faithfulness and zeal of its Director, Professor Sargent.

The Arnold Arboretum differs from other arboreta, in that it is the largest space in the world devoted to dendrology as a scientific study, and its collection of woody plants is more complete and satisfactory here than in any of the great botanic gardens of Europe, where the tree collections are simply appendages to their very remarkable assemblage of tropical and native plants. Here 150 acres are devoted entirely to the cultivation of woody plants, that is, trees, vines and shrubs; and these are so carefully prepared and selected, and so skillfully cultivated by Mr. Dawson, the superintendent, that better specimens can nowhere be shown of trees that have only been growing for less than a score of years, while the shrubberies are in great perfection and variety, and the vines beautifully luxuriant.

Its scientific value is so well known and is so ably illustrated in this very paper by writers far more able to cope with it on that basis than I, that it is only necessary now to write of it as a place which everybody in its neighborhood ought to be familiar enough with to enjoy as it deserves, and to suggest that when the early spring tempts the city-dweller to prolong his drive that he should view with more than passing attention this unique and valuable possession of Boston, which he is

apt to pass through carelessly, more conscious of the unfinished grounds than of the plans for a great future which have been so carefully considered in the work about him. For here he beholds not the taste of the day and hour, the rendering of a passing fashion in grouping of trees or massing of shrubbery, but a permanent scientific arrangement, at once fine and instructive, which is to be not only for his benefit, but for that of many generations to come, who shall enjoy the full perfection of that of which he receives but a promise.

Through these entrances so strong and simple, where the plain granite gate-posts are just massive enough to be impressive without pretension, he enters one of the great gardens of the world, to be considered by the future American with the same respect with which the Englishman regards Kew, and the Frenchman the Jardin des Plantes.

There are various ways to reach the Arboretum, but to the visitor by rail the Forest Hills Station, on the Boston and Albany Railroad, affords a convenient approach, and by entering at the South Street gate he is introduced at once to the noblest feature of all—the rocky hill covered with noble Hemlocks, which rises on the left of the entrance—while on the right is another elevation, now crowned with a young and vigorous growth of Hickory, planted Pines, Larches and other conifers, that in a hundred years may make it a rival for the opposite hill, which has borne its stately crown of evergreens perhaps for more than a century and a half.

At whatever season one enters this ancient forest it is venerable and impressive. The hill is a wall of rock in broken terraces, and here upon its northern slope the giant trees lift their great shafts and spread their green branches, even as they must have done when Paul Revere was a boy, and British soldiers patrolled the streets of little Tri-Mountain.

There is no level ground except at the very base of the rise, where a stony brook tumbles along beside a narrow foot-path which you cross a plank to reach. In summer the trees afford cool and grateful shade; in winter shelter and warmth, for the winds are baffled by their phalanx of trunks and boughs and foliage, and cannot penetrate the depths of this forest-asylum.

Following the little woodland-path that skirts the hill you emerge finally upon the broad drive-way, to which it runs nearly parallel. This drive-way, admirably graded, leads by a gentle ascent to the higher ground, bordered throughout its large, gracefully sweeping curves by masses of native shrubs, which, either filled with blossoms or fruit, produce all summer the most pleasing effects of color.

Apparently artless in their growth, there is a perfection in the contour of the whole beautiful border, which shows the most careful supervision. Creepers run from the bushes to veil the edges of the road, and the mass behind leads gradually up to the groups of trees, which are arranged in botanical order, but in such natural groups and blending that the beholder does not realize that what he sees is the perfect and thoroughly contrived section of a finished whole.

First, on the right, come the Beeches, with their spreading branches and serrated leaves. Like all the trees in the permanent plantation of this young garden, they have been started here from seed or bud, and, of course, are still comparatively small; but, as they are to endure for a century or two, they are planted at wide distances, so that there will be ample room for the sweep of their great branches. Even now they are beautiful, with their smooth boles and shining leaves, which always seem to catch and reflect more sunlight than those of any other deciduous tree.

Beyond these come the great variety of Oaks, stretching far along the right of the drive-way, while on the left are groups of Hornbeams, rough-barked and gnarled, some of them with hop-like blossoms and leaves like Elms; and then come Chestnuts in variety, and finally a great mass of Hickories of all sorts, between which and the groups of Butternuts and Black Walnuts the road makes a serpentine curve upon itself, and comes gently rising to the summit of the hill, where, from a circular esplanade, there is an extended view of all the surrounding country, with villages and scattered dwellings nestling amid groups of trees, and the far-away towers and spires of Boston, and in another direction the grand outline of the Blue Hills, the whole making a noble outlook full of variety and beauty such as any park might well rejoice in. Here at your feet lie the groups of Birches, Elms and Ash-trees, with Catalpas on a rising ground behind, by which you pass as you wind round the hill on the east side, coming down to the interesting nursery and the great group of systematically arranged shrubs, two miles and a half of them, if you count the length of the walks between the different beds, where they are grouped in splendid luxuriance; such specimens! so vigorous, so handsome, so laden with blossom or fruit according to the season! It is enough to make the amateur die with envy to see the way they flourish in the rich soil which is supplied to them, where never a weed is permitted apparently to show its intrusive head.

The vines climb upon tall poles and spread out their branches and tendrils until they resemble trees; the Rose-bushes, all single-flowered, bend over with their weight of blossom. The air is fragrant with Honeysuckles and Sweet-brier. The bees make harvest in the warm sunshine and riot amid the wealth of flowers. You forget you are there to learn something, and revel simply in the great luxuriance of this marvelous garden, where are to be seen specimens from all temperate lands grouped and labeled, so that they become an object-lesson of rare beauty. At whatever time of year you go, these beds are gay with flowers or rich with fruits, hanging singly or in clusters from the bending branches. Do you want a shrub for your garden? Here you can see its effect when brilliant with summer bloom, or jeweled with ruby and amethyst fruitage. Does your porch need the shelter of clambering Rose or twining vine? Here you can judge of the proportions to which it will grow under careful nurture. Do your nursery specimens fail to answer your expectations? At the Arboretum you can learn how to help and stimulate their best development.

It will be hard to tear yourself away from the shrubs, and when you have left them behind you resolutely, there are more trees to see, trees cultivated and trees wild, trees that have been pruned and saved from a lingering death, trees that have been grown from seeds sown in the nurseries of this lovingly tended garden. From Magnolia to conifer they run, in all the varying scale of arborescent beauty; and of all the plantations there are none more delightful than the groups of evergreens growing symmetrically on a slope near the Walter Street entrance.

There is a wonderful charm in these groups of Firs and Spruces in endless variety of form and color—stout little Spruces from the Rocky Mountains, the stately fast-growing Douglas Fir, the beautiful Blue Spruce of Colorado, the Black Spruces from Maine, and the White Spruces from Canada, all flourish here, with many other varieties, which are less interesting, botanically, to me than as the most lovely little trees in the world. For in these plantations, only begun seventeen years ago, every tree is vigorously young. They are raised from seed planted in the nurseries here, and are carefully selected for the vigor and beauty of their growth.

The only thing I complain of is that the Arboretum authorities provide the visitor with no place to sit down and enjoy all these wonderful things, among which one wanders until one is weary with pleasure. One would gladly sit for an hour among these winning evergreens until each had become an identity, making little excursions into the mysterious depths of the bosquets and returning to contemplate some especial favorite. The Pines and Larches are equally lovely, but I have a liking for the sturdy Spruces and Firs, wrapped like Esquimaux in their furry tight-fitting garments, sitting down solidly on the ground, with their pyramidal persistence, bidding defiance to wind and weather, and affording alike shelter and satisfaction.

They tell tales of snowy plains and bleak hillsides and far-away peaks, presenting their serried spears to the blast. Their serrated outline against the sky, familiar to me from childhood, is quite other than that of the deciduous trees of southern New England, interspersed as they are with the broad soft masses of Pine-branches. They have an aspect of their own, full of suggestion to the true northerner who has been sheltered by their somewhat austere presence. They partake, too, of the northern character, really valuable and steadfast but not alluring, full of sharp edges and prickly points, and wearing an aggressive air to strangers, with the same power to kindle and burn with a tremendous flame when the occasion comes.

But do not linger too long among the conifers, for there are natural woods to walk in, that have not been planted, with crackling leaves under foot, and underbrush to catch your garments, and glimpses of blue sky through crowding branches, under whose shade young seedlings spring up strong and tall—a perpetual storehouse of specimens for the Arboretum.

Nor must you go until you have climbed to the top of the Hemlock Hill and rested in the shadow of its mighty giants and learned what centuries can do for trees, and wondered that in the city's heart so fine and wild a tract of woods as this should still exist to gladden the hearts of its inhabitants.

And soon there will be the new museum to see, the splendid gift of Mr. H. H. Hunnewell, with all sorts of treasures within, the great library, and valuable herbarium, which for years

Professor Sargent has been assiduously engaged in collecting, and now generously gives to the Arboretum, with specimens of fruits and flowers, of nuts and cones, of woods and roots, and hundreds of other things that are a delight to the lovers of trees and flowers.

Apart from all there is to rejoice the eye and cultivate the mind in this noble tree-garden, the Arboretum, the thought of its permanence should ever be present with one to fully appreciate how great and valuable and beautiful a gift it is to the country. Nowhere else has provision been made for such a garden to exist for a thousand years under practically the same conditions of growth and development, and as one looks forward to the time when these fine young trees shall be mossy with age and decrepit with the wear and tear of centuries, there is great food for the imagination in the thought of the greater Boston that will encompass this wooded region, and of the differing race of men who will walk beneath the overhanging branches of the mighty Oaks and Chestnuts which will then shade its pleasant paths, and be the wonder and delight of other generations. The beauty which we find charming and promising in its immaturity will then be stately and solemn in its perfection of size and venerableness. Far away will be the memory of those who planned this forest for future ages, dim their personality, but unforgotten their names, for these the world "will not willingly let die." In this age, so full of personal struggle, of selfish greed, of individual ambition, it is well to know that men live with small thought of their own fame, who are planning wisely for the future happiness of millions.

Like the roots of the trees they plant, their beneficent mission is hidden from the sight of man, but the outgrowth of their deep-laid plans shall rise in the sight of all the people as a blessing far-reaching and magnificent as the great limbs of the Oaks and Beeches, which shall be their stateliest monument.

Hingham, Mass. *M. C. Robbins.*

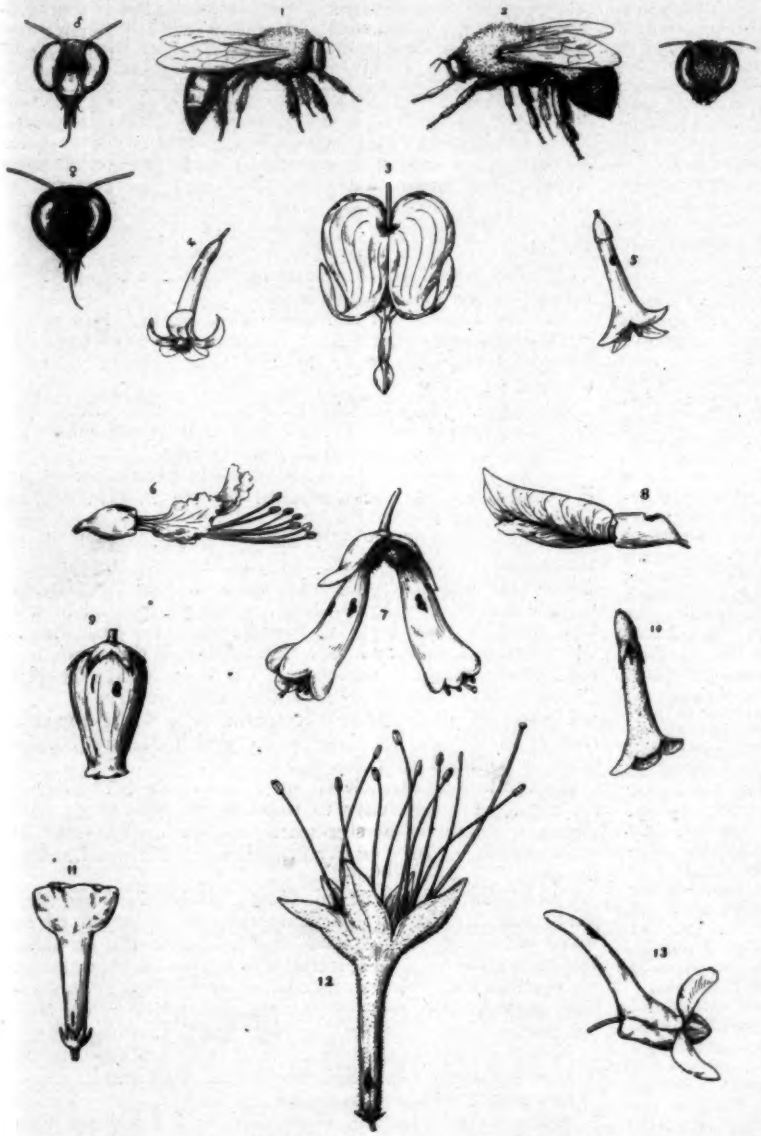

Fig. 7.—The Perforation of Flowers.

1. Xylocopa and heads of male and female. 2. Bombus and head. 3. Dicentra spectabilis, showing punctures. 4. Ribes aureum. 5. Ligustrum Ibota. 6 Æsculus glabra. 7. Lonicera involucrata. 8. Caragana arborescens. 9. Andromeda Japonica. 10. Buddleia Japonica. 11. Mertensia Virginica. 12. Rhododendron arborescens. 13. Corydalis bulbosa.

The Perforation of Flowers.

THE subject of the relations and adaptations which exist between flowers and insects does not appear to excite as much popular attention as many other branches of natural science which are no more interesting. Sprengel, Darwin and Hermann Müller have been the chief authors in giving us our present knowledge and interest in the study; Sir John Lubbock has helped to popularize it, and Professor W. Trelease and others have carried on the work in this country.

The perforation as well as the fertilization of flowers has received attention, but there is a wide field for further study for those who have leisure to pursue it, as it requires much time and patience, as well as closeness and accuracy of observation.

The accompanying figures, from drawings by Mr. C. E. Faxon, show a few characteristic perforations and mutilations, and also represent two of the principal kinds of insect which make them.

Any one interested in the subject will find an excellent brief review of the work already done, a fair bibliography, and a list of perforated flowers, in Professor L. H. Pammel's paper on the "Perforation of Flowers" in the *Transactions of the St. Louis Academy of Science*, vol. v., pp. 246–277.

The general beauty of flowers is usually not greatly marred by the perforations except in a few cases, as when the spurs of Columbines and corollas of Trumpet Creepers are much torn, which frequently happens.

The great object of the perforations by insects is the obtaining of the concealed nectar in an easy way. Very naturally, flowers which depend on insect agency for fertilization rarely produce seed when punctured if they are not also entered in the normal way. Perforating is only practiced by a small number of species of insects, and many, but not all, of the perforators do so because their tongues are too short to reach the nectar by entering the flower. Some obtain nectar from the same kind of flower, both in the normal way and by perforating.

The chief perforators of flowers, in this part of the continent at least, appear to be some kinds of humble-bees (Bombus) and carpenter-bees (Xylocopa). These insects have developed an unerring instinct as to the proper point to perforate the corollas from the outside, in order to readily get at the nectar. The holes made by the humble-bees and by the carpenter-bees are usually quite different and easily distinguished.

The humble-bees have short, stout, blunt jaws, ill adapted for cutting, and the perforations made by them are apparently always irregular in shape, and have jagged edges. It has been stated that the humble-bees often bore through the tubes of

their corollas with their maxillæ, but in all cases observed by me the mandibles were first brought into use in effecting an opening. The noise caused by the tearing is often audible for a distance of several feet.

The true jaws of the carpenter-bees are not any more prominent or better adapted for making clean-cut perforations than those of the humble-bees; but behind the jaws there is a pair of long, sharp-pointed, knife-like, jointed organs (maxillæ) which seem to be exclusively used on all ordinary occasions in making perforations. The inner edges of these maxillæ are nearly straight, and when brought together they form a sharp-pointed, wedge-shaped, plow-like instrument which makes a clean, narrow, longitudinal slit when it is inserted in the flower and shoved forward. The slits made by it are often not readily seen because the elasticity of the tissues of some flowers causes them to partially close again. When not in use the instrument can be folded back so that it is not conspicuous. The ordinary observer usually sees no difference between the humble-bees and the carpenter-bees, but they may be readily distinguished by a little close observation.

No doubt, in some of the recorded cases of perforations, carpenter-bees have been mistaken for humble-bees. The heads of all our northern humble-bees are rather narrow, retreating from the antennæ toward the sides, and with a more or less dense tuft of hair between the antennæ. The abdomen, as well as the thorax, is always quite densely covered with hair, which may be black or yellowish or in bands of either color. With possibly one or two exceptions, the only species I have seen doing the puncturing is Bombus affinis, Cresson.

The carpenter-bees (Xylocopa Virginica) of this region have the head very broad and square in front, and with no noticeable hair between the antennæ. The heads of the male and female differ strikingly. In the male the eyes are lighter-colored and are hardly half as far apart as in the female, and the lower part of the face is yellowish white. The female has eyes smaller, darker, and very far apart, and the whole face is perfectly black. The abdomen is broad, of a shining blue-black color, very sparsely covered with black hairs, except on the first large segment nearest the thorax. On this segment they are more dense and of the same tawny color as those on the thorax. But it is particularly from the character of the head that the amateur observer of the perforators may soon learn to distinguish between a Xylocopa and a Bombus as they work among the flowers. It is also interesting to know that the Xylocopas are not so inclined to sting as the humble-bees, and the males, of course, being without stinging organs, may be handled with impunity.

Among other insects, honey-bees have been said to perforate flowers, but authentic instances are rare of their doing much damage, or even making holes. I have only recorded a single instance, and in this a honey-bee was seen to perforate the fragile spurs of Impatiens. When searching for nectar they quite commonly use the perforations of other insects. Wasps and other allied insects also perforate for nectar. My only observations being a Vespa puncturing Cassandra calyculata, an Andrena (?) perforating the spurs of Aquilegia, and Adynerus foraminatus biting holes close to the base on the upper side of Rhododendron-flowers. The holes made by some of the wasp-like insects are often more or less circular and with clean-cut edges. The ravages committed by larvæ, beetles and other insects in devouring flowers, or parts of them, do not properly come under the head of perforations.

The question as to the cause of the handsome corollas of the Trumpet Creeper (Tecoma radicans) being so often split and torn has been accounted for in various ways in published notes on the subject. Humming-birds and ants have been blamed, the humming-birds being such constant visitors of these flowers that it really seemed as though they must be the authors of the mischief. I have often watched them when they appeared as though they were pecking at the blossoms, but careful examinations, both before and after their visits, always failed to show any trace of injury. Finally, on July 26th, 1890, I was rewarded by seeing a number of Baltimore orioles vigorously pecking at and tearing open a lot of fresh blossoms, and this observation was afterward repeated. That the oriole should do this was not surprising, considering its known habits in relation to some other flowers.

Arnold Arboretum. *J. G. Jack.*

[Mr. Jack adds a list of sixteen plants whose flowers he has seen punctured by the carpenter-bee, and seventeen others whose flowers were punctured by the humble-bee. He names more than thirty other flowers which he has found perforated without having seen or identified the authors of the mischief.—Ed.]

Foreign Correspondence.

New Garden-plants of 1891.—I.

A REVIEW of the new plants introduced into cultivation and described in various periodicals for the first time during last year does not reveal much of very decided value. The bulk of them have already been noticed in the pages of Garden and Forest, but, following the practice of previous years, I propose to sweep them all together, marking specially those possessed of horticultural merit. Orchids stand a long way first in point of number. There are exceptionally few new introductions of any note. The hybrids, too, fall short in interest of those of the previous year. Of species, hybrids and wild varieties there are altogether seventy additions. Besides these, there are those Orchids which had previously been rare, but are now abundant in gardens in consequence of large importations made last year. The most noteworthy of these are Cattleya labiata vera (Warocqueana) and Dendrobium Phalænopsis. Cattleya Rex is another recent acquisition of quite exceptional promise.

Ada Lehmanni, Rolfe, differs chiefly in the foliage from the well-known A. aurantiaca.

Aërides Laurenciæ, var. Amesiana, Sander, is a grand variety of a grand Orchid. It has racemes over two feet long crowded with larger flowers than those of the type (Sander & Co.)

Angræcum fragrans, Spreng., is an interesting little species of economic value in the Island of Bourbon, where its leaves, when dry, are used as tea. (Kew.)

Cattleya Lowryana, Hort., is a pretty hybrid, raised by F. Sander & Co., and described by me in Garden and Forest, iv., 293.

Cirrhopetalum Collettii, Hemsley, is the largest, handsomest and most remarkable species of a remarkable genus. It was discovered in upper Burma by General Collett, and sent by him to Kew, where it flowered for the first time in June last. C. Wendlandianum, Kranzlin, is described as a new species which combines the characters of C. Medusæ and C. fimbriatum. It is not unlike General Collett's plant, and comes from the same country.

Cœlogyne Micholitziana, Kranzlin, is a white-flowered species in the way of C. speciosa, which Messrs. Sander & Co. introduced from Macassar.

Cochlioda Nœzliana, Rolfe, is a charming little Orchid for the cool house, easy to manage, free-flowering, with elegant racemes of orange-scarlet and yellow flowers. It was introduced in quantity from Peru by Messrs. Linden, Brussels.

Cymbidium pulcherrimum, Hort., Sander, is a beautiful plant, with the habit of C. Mastersii, and a dozen or so waxy white flowers striped and flushed with crimson. Messrs. Sander & Co. have introduced it from northern India.

Cypripedium. There are numerous hybrids of this genus, as usual, few being of any real decorative value. The best are C. Antigone (from C. niveum and C. Laurencianum), C. Berenice (from C. Rœbelini and C. Lowii), C. Ceres (from C. hirsutissimum and C. Spicerianum), C. Castleanum (from C. hirsutissimum and C. superbiens).

Dendrobium Leeanum, Hort., Sander, is a species from New Guinea, with the habit of D. superbiens, the flowers being white, mottled with rose and tinged with green (F. Sander & Co.)

Disa Veitchii, Hort., is the best hybrid Orchid of the year. It was raised by Messrs. J. Veitch & Sons from D. grandiflora and D. racemosa, flowering within two years from the time the seeds were sown. We have made the same cross at Kew, besides other crosses between these and D. tripetaloides, and the seeds have germinated freely. It was proved long ago by Dr. Moore, of Glasnevin, that Disas could be easily multiplied by means of seeds. I am of opinion that in the three species here named we have very promising material for the production of a really valuable race of easily grown cool Orchids.

Epidendrum Dellense, O'Brien, is a pretty hybrid from E. xanthinum and E. radicans. It originated in the garden of Baron Schrœder.

Habenaria carnea, N. E. Brown, has already been noted and figured in GARDEN AND FOREST (vol. iv., p. 475, fig. 76).

Lælia Arnoldiana, Hort., is a handsome hybrid between L. purpurata and Cattleya labiata, raised by Messrs. Sander & Co. The flowers are as large as those of L. purpurata, while the color is that of a richly marked form of the Cattleya. There is a good figure of it in *Lindenia*, t. 294. L. grandis, var. tenebrosa, is a distinct and beautiful variety, the sepals and petals colored a rich terra-cotta, the lip being crimson, with a broad wavy margin of white. It also is represented by a good figure in *Lindenia*, t. 290.

Masdevallia Rolfeana, Kranzlin, is a large-flowered species in the way of M. velifera, but colored rich chocolate-brown (Sander & Co.) M. falcata, O'Brien, is a hybrid between M. Lindeni and M. Veitchii, which promises to be a good garden-plant. It was raised by an English amateur, Mr. D. O. Drewett. M. Mundyana, Hort., is a hybrid between M. Veitchii and M. ignea, var. aurantiaca, which we owe to the skill of Messrs. F. Sander & Co.

Miltonia vexillaria, var. Sanderiana, is a beautiful variety which I recently described in GARDEN AND FOREST (vol. iv., p. 545).

Odontoglossum Cookianum, Rolfe, is a supposed natural hybrid between O. triumphans and O. Sanderianum. O. dellense, O'Brien, is another so-called natural hybrid, its supposed parents being O. Pescatorei and O. prœnitens; a third doubtful hybrid is one named O. Godseffianum, which is said to suggest O. Lindleyanum and O. triumphans. It would seem that those who name Orchids are less certain than of yore, if one may judge by the number of introduced plants which are now dubbed natural hybrids. It would simplify matters considerably if such plants were either allowed to rank as distinct species or called varieties of those they are most like. We have a supposed natural hybrid among Oncidiums now, namely, O. Larkinianum, whose characters are thought to be a mixture of O. curtum and O. Barclayanum. I should call it simply a bright-colored variety of O. curtum.

Peristeria aspersa, Rolfe, was described and figured in *Lindenia*, t. 277. It is in the way of P. pendula, the pseudo-bulbs being as large as goose-eggs, and the short pendant raceme crowded with ten flowers, which are almost as large as those of P. elata, and colored yellow, thickly speckled with crimson, the lip being blotched with red. It is a fine plant, and was introduced by the Messrs. Linden, from Venezuela.

Phajus maculato-grandifolius, Hort., Veitch, is a hybrid between the two species, indicated in the name. It has the habit of the latter species, tawny, yellow flowers, with a poor lip, a character derived from P. maculatus.

Renanthera Imschootiana, Rolfe, is a pretty addition to the genus. It is very similar to R. Storeyi.

Restrepia strata, Rolfe, is a charming little Orchid, exactly like R. elegans, but with striped instead of spotted sepals. It was introduced from New Granada by Low & Co.

Schomburgkia Sanderiana, Rolfe, is similar to the bull's-horn species, S. tibicinus, but with shorter pseudo-bulbs and rosy, carmine flowers. The worst character in the plants of this genus is their shy flowering behavior under cultivation.

Sobralia macrantha, var. Keinastiana, Hort., is a white-flowered variety, as already noted in GARDEN AND FOREST (vol. iv., p. 305). It is in the collection of Baron Schrœder.

Spathoglottis Ericsonii is a yellow-flowered species, which has been introduced by Messrs. F. Sander & Co., but I have not seen it. Possibly it is a form of S. aurea.

Stenoglottis longifolia, Hook. f., is a pretty, easily cultivated Orchid, for the cool house. It has been introduced from Natal to Kew, where it flowered this year, the erect scape, eighteen inches high, bearing its pretty, deep mauve flowers for about three months.

Thunia Mastersiana, Kranzlin, is a tall, long-leaved plant, with flowers about half the size of T. alba. It has been introduced from Monlmien by Messrs. F. Sander & Co.

London. *W. Watson.*

Cultural Department.

Seed-sowing.

JANUARY is a dull month as far as garden operations are concerned. The days are so short that growing plants are almost at a standstill, so there is very little potting that can be done; but it is an excellent time to sow small seeds like those of Begonias and Gloxinias. It is well known that seeds germinate well when kept darkened, and partly owing to this, and because the temperature is under control at this season, small seeds will now germinate evenly and well, and they are not so liable to be washed out by overwatering, because, if they are properly sown, little water is needed until they are above ground.

To destroy all insects and weed-seeds in the soil intended for use it is a good plan to prepare it, sifted, ready for use, and then place it in a tin vessel and bake it for half an hour in a hot oven. This treatment will forestall all trouble with worms or weeds. When sowing a lot of Australian seeds some time ago I tried the solution of copper, which is said to prevent pots from becoming green, and this, with baked soil, seemed to be a good way to reduce the growth of moss on the soil to a minimum, as perfectly new pots were used. The pots, however, became as green as if they had not been treated with copper, and I am apprehensive, therefore, that we have not yet found a sure remedy for this trouble. Last year from a twelve-inch pan and one packet of seeds we pricked off over 200 Gloxinias, about half of which flowered in six-inch pots in July—that is, in about six months from the time of sowing—and there is nothing unusual about this if good seed be used and a temperature of sixty degrees be maintained at night. Many amateurs think that it does not matter much what sort of a night temperature prevails in their greenhouse so long as frost is excluded, and often, too, on a mild night it may be ten or fifteen degrees higher than it was the night before, and then they wonder why tender seeds damp off or never come up. It should be made a point to maintain the right heat from the time the seed is sown, or if this cannot be done in the coldest weather, then no more seed should be sown for another month. In most greenhouses, fortunately, there is a warm corner where a small frame may be placed to put seed-pans in and keep them at a little higher temperature than that of the house itself, just to coax the seed a little at first. After they are up even, and large enough to prick off, lift with a small forked stick and transplant.

As to soil suitable for seeds, there are two cardinal points to be observed. Enough decayed leaf-mold should be added to the loam to prevent it from caking or becoming hard, and enough sand should be added to guard against its becoming sour or water-soaked. Soil of this quality and texture is suitable to receive any seed, large or small. Fertilizers are not desirable in the seed-pans or in the soil used for pricking off into boxes; but when the time comes to pot the young plants a richer soil will be beneficial, for they need nourishing as they gain strength. Such small seeds need very little covering; the pans should be filled to within half an inch of the rim, and a little very fine soil should then be sifted over the surface. If the pans are then well watered and allowed to drain for an hour, the seeds can be sowed evenly and a slight sprinkling of sand should be sifted over them. In watering care should be taken not to wash the sand. A fine sieve suitable for seed-sowing may easily be made with a piece of wire mosquito-netting tacked on to a shallow cigar-box after removing the bottom and the lid. This sieve will be found useful for cleaning seed, especially if wire-netting of different sizes can be procured.

South Lancaster, Mass. *O. O.*

Notes from the Harvard Botanic Garden.

APHELANDRA AURANTIACA.—The bright flowers of this plant have a wonderfully enlivening effect in the stove during our dreariest weather. It is a shrub of somewhat dwarf habit, belonging, like many other good winter-flowering plants, to the Acanthaceæ. The large opposite ovate leaves, borne on short petioles, are rich dark green on the upper surface, and paler beneath. The flowers are produced in compact terminal spikes from three to six inches long. The corolla consists of a long narrow tube, the greater part of which is hidden by

greenish bracts and a conspicuous, spreading, two-lipped limb, the lower lip being deeply trilobed. The color is vivid orange-scarlet internally, and yellowish outside. The plant is of easy culture, and flowers freely when young. It is readily propagated from moderately firm cuttings with a slight heel of older wood, placed in strong bottom-heat and kept close. The young plants when potted should be placed in a high stove temperature, and have abundant water on roots and leaves while actively growing. A moist atmosphere is essential to hold in check the red spider until the leaves become hard enough to defy its attacks. They may be kept cooler and comparatively dry after flowering, and, like older plants, they should be cut back closely in spring, placed under stove treatment, and repotted when the young shoots have made a fair start. Seeds ripen freely, and seedlings make better plants than those obtained from cuttings. The seeds should be sown when fully ripe, in early spring, and the plants grown on as cuttings are in a stove near the glass. The plant was introduced from Mexico in 1844. The well-known variety, A. aurantiaca Roezlii, was introduced from the same country in 1867. It is a rather better plant than the species, with silvery leaves and brighter flowers.

Cestrum aurantiacum.—This shrub is an old occupant of greenhouses, of free growth and peculiarly graceful habit, and bearing attractive flowers in great profusion. Its dark green, oval leaves make an admirable setting for the bright orange blossoms, which are tubular and about an inch long, with a small, regularly parted, reflexed limb, and borne in large, loose panicles. Young plants are quickly obtained from cuttings of the soft wood at almost any season of the year. This Cestrum should be planted in a sunny part of the garden after the danger of frost is past, and in autumn it should be potted and placed in a cool greenhouse for the winter. In this way it will make a good display out-of-doors in summer, and again under glass in winter. It does equally well in a permanent greenhouse-bed. In any case, older plants should be regularly, though moderately, pruned every spring before vigorous growth begins, but not until the roots have started. Large, full-grown specimens bloom more freely in proportion to their size than those that are smaller, and it is therefore desirable to encourage their development. C. aurantiacum is a native of Central America, and was first introduced to European gardens in 1843.

Fig. 8.—An Illustration of the use of Herbaceous Plants in connection with buildings.—See page 26.

Epiphyllum truncatum.—None of the Cactus family excels in graceful beauty this little inhabitant of the Organ Mountains of Brazil. It is an old plant in gardens and universally admired, having been introduced about a hundred years ago. The growth has some of the remarkable characters of its curious relatives, but lacks their stiff outline and grotesque aspect. It has a rambling habit, branching with great freedom, and is destitute of foliage. The stems are flattened, of lively green color, and jointed in three-inch sections about an inch in width. The bright, rosy purple flowers are some three inches in length, and of bright, rosy purple color. They appear freely at the points of the shoots during the winter and last for several weeks, large plants being often in bloom for months together. A stove temperature and plenty of moisture are required when the plant is making its growth, but after that period the heat may be reduced by ten or fifteen degrees, when water should be applied sparingly and only to the roots. Small portions of the young stems are easily rooted in sandy soil, but the plants obtained by this method of propagation, though useful for hanging-baskets and marginal stage-pots, are not so effective as those secured by grafting on stocks of the Barbadoes Gooseberry, Pereskia aculeata. The stock is a plant of the same order as E. truncatum, with spiny stems and large, oval leaves. It is easily grown from cuttings to the required height, which varies according to the size of the specimen desired. Neat plants are obtained by using a single cion on stocks twelve or eighteen inches high, and for larger specimens taller stocks must be employed, inserting a cion at the top and others at intervals along the stem. In grafting it is simply necessary to cut away the upper portion of the stock, clean across at the required height; remove a small wedge-shaped piece at the top, and fit a portion of the young stem about three or four inches long with growing tip to the opening thus made, binding it firmly with soft material. Openings made in the side of the stem should be treated in the same manner, and in a few weeks the binding may be removed. Grafted plants thrive most vigorously in a compost of rich loam, thoroughly decomposed cow-manure and sand, but those on their own roots give more satisfaction in a soil something poorer. The former should also be watered occasionally with weak liquid manure, when growing freely, and annually top-dressed with rich soil when repotting is inexpedient. There are many varieties of E. truncatum, or hybrids of that species, and the very slightly different E. Russellianum. These closely resemble their parents in all but the color of the flowers, which includes selfs of orange, purple, scarlet and pink, and shades of the three latter colors intermixed with white. Under its common name of Crab Cactus this plant is now brightening many a cottage window, and it has few superiors for this purpose among winter-flowering plants.

Toxicophlæa spectabilis.—This is the most beautiful plant now flowering in our greenhouses. It is one mass of pure white fragrant flowers and deep verdant foliage. It was introduced from south Africa some twenty years ago, and is one of the most popular of indoor plants. It is of shrubby habit, with opposite, oblong-lanceolate leathery leaves four to five inches long. The Jasmine-like flowers, with narrow tube and

spreading, five-parted limb an inch across, are borne in large axillary clusters, almost hiding the stems and foliage when fully expanded. It thrives luxuriantly in a maximum winter temperature of sixty-five degrees, and may be grown in the open air, either in pots or planted out, during the summer months with entire satisfaction. The flowering season extends through the dullest portion of the year—winter and early spring. The individual flowers do not last longer than a few weeks, but new ones keep opening continually. It is propagated by cuttings of half-ripened wood during the spring months, with a moderate amount of bottom-heat. The plant likes abundant light, and it will not bloom freely nor long retain good health when closely shaded for any considerable period. It is widely known under the name of Acokanthera spectabilis, and possesses very poisonous properties. In south Africa it grows in sandy soil convenient to the shore, forming a large bush, and the natives of that region formerly poisoned their arrows with a jelly prepared from its bark.

Cambridge, Mass. *M. Barker.*

The Experiment Garden.

ABOUT ten years ago I selected a few beans which had come from apparent crossing; and from that time by selection only, leaving all crossing to natural causes, I began the increase of varieties. The work at first resulted mostly in giving me some very curious and beautiful beans; but the fourth year struck out strains that bid fair to be valuable. In selecting I had in mind (1) to produce wax pods; (2) to secure them free of tendency to rust; (3) to enlarge the yield; (4) to get either white beans, or those that would cook white. There is also a good opening in market for a late Cranberry bean. Bearing such points in mind, I have secured white-podded beans, entirely free of rust, ten inches long, and ten beans to a pod. The yellow field Bean I have turned into a white-podden sort, with no change in the bean. It was easy to cross in the southern Cow Pea, but no special advantages have occurred from it. The result is a small wax pod, growing on vines that may be trellised like peas. It was difficult to secure crosses of the Lima, and those that I have so far secured are not of high value. The Lima may improve other Beans; it is not likely to be improved by them. But by selection I am in possession of a strain producing generally five beans to a pod, and occasionally six. By careful breeding I believe a six-beaned pod can be fixed, or even better.

In working out rust, I found that the Golden Wax was the worst possible parent. Nor am I sure that any sort from that crossing is quite sure of being spotless in bad seasons. Crosses of the Horticultural or Cranberry are peculiarly unstable, as are also those of the old Refugee. But I have been able to fix a few of considerable promise. From first to last I suppose I have obtained at least five hundred new crosses of Beans. Of these I have retained about one hundred. Each year shows some strain of value; but I am now intent only on suppressing the tendency of broken-up varieties to cross into new sorts.

One experiment only in Raspberries has given me a strain of very early sorts, some varying toward the Philadelphia, and others toward the Cuthbert, which were the parents. These give hope of securing at last an early berry as good as Cuthbert is for main crop. At least I have no results so good from any of the old sorts as from these. They need further testing, as I have so far only given them a crowded chance in my experimental plot.

Exactly what I have in the way of Grapes to offer I cannot determine; but returning to my home about October 1st, last year, I found there sorts already dried on my vines in a row of neglected seedlings. They were, as half raisins, delicious, and must have been very early. One was red, one white and one black. Small seeds, medium clusters and medium berries were the characteristics.

The experimental garden is the most interesting side of fruit-culture and farming in general. It does not often prove profitable, but we are able to contribute somewhat to the store of knowledge, and possibly may add to the list of human foods. These are but few of many attempts at improving fruits, vegetables and flowers, and, although I have reached no striking results, I consider the time and labor well repaid in the way of self-culture.

Clinton, N. Y. *E. P. Powell.*

Autumn Snowdrops.—My experience with these plants has been very limited, but I am an anxious inquirer on the subject, and the note of Herr Max Leichtlin was even more interesting than many of the always valuable communications from Baden-Baden. In studying up the Snowdrops I have never been able to determine from the writings of the experts the actual difference between the early-flowering forms—Galanthus Olgæ, G. nivalis Octobrensis, G. nivalis Corcyrensis and G. Rachelæ. If I understand the matter rightly the two former bloom at the same season, and by some persons they have been considered identical. Snowdrops, like most plants, vary in size of flowers and in time of blooming, according to location and culture, and in the open, conditions of temperature, of course, will have their effect. In view of this it seems difficult to separate the variety Octobrensis from Corcyrensis with the present data. Herr Leichtlin says the segments of G. Octobrensis are a little narrower than those of G. Corcyrensis, yet I understand that he has raised some seedlings of the latter variety which have very narrow petals and which bloom a month earlier than the parent. It would be interesting to know how these latter compare with G. Octobrensis. Here we have a point where, if anywhere, the difference of the varieties could be determined and described. In a collection of Snowdrops secured by me last summer the varieties Octobrensis and Corcyrensis were said to have been included, and I was rewarded early in November with flowers of what I determined to be G. Octobrensis. Later I have been favored with a succession of blooms of what I suppose is G. Corcyrensis. These are nearly over, and have lately disappeared in a snow-bank, but to-day I picked a still perfect flower, and I find them of much superior form to some typical flowers just received from an English amateur friend. The segments are seven-eighths of an inch long by three-eighths broad, the ovaries very small and of a pale green, the inner segments white, with green markings and deeply notched. As Snowdrops usually improve after being well established, it is fair to assume that another season will see them in even better form. Whatever the varieties prove to be, I have a promise of Snowdrops from October till G. Elwesi, which is now showing color, is prepared to carry forward the succession.

Elizabeth, N. J. *J. N. G.*

Tomatoes.—Ten weeks before the date when it is safe to set the plants out-of-doors, in any given locality, seeds of early Tomatoes should be sown in boxes in a warm greenhouse or in a sunny window. As soon as the little plants are fairly under way and before they get drawn, they should be transplanted into another set of boxes about two inches apart, or potted into three-inch pots. The latter plan is best when there is room. Four weeks before it is safe to finally place them in the open ground, they should be transplanted into a cold frame four inches apart each way, and gradually inured to the air. When carefully hardened, they should go outside as soon as it is safe for them; a light hoar-frost will do them little damage, and they had better be outside to start with the first warm weather. In a recent bulletin from the Cornell Station Professor Bailey mentions the advantage of early setting, and this is a point to be insisted on. I have had large stout plants, that had been gradually inured to the outer air, white with hoar-frost after going out, without suffering serious injury. The plants turn purple with the cold and stand still apparently for a while, but really they are getting a firm hold in the soil, and as soon as the weather warms up they are ready at once to do their best. I have in this way had plants, set out May 1st, in northern Maryland, give me an abundance of ripe fruit on the 20th of June, while some of the same lot of plants, kept back a week later in the frames as an insurance against loss of the first, did not give fruit until July 10th. Here, plants set out April 1st and exposed to slight frost, gave ripe fruit May 25th; and part of the same lot of plants, set out in middle of May, gave no ripe fruit until June 15th. While it is usually a great advantage to get the plants out at the earliest practicable moment, there is, of course, some risk connected with it, for the frost may come too severely. I therefore always take this risk only with part of my early plants, reserving the remainder to insure against entire failure should the first be killed.

Early Cabbages.—We are now (January 8th) transplanting our early Cabbage-plants (from seed some only ten days ago) into boxes, preparatory to putting them out in the cold frames. We prefer this practice to sowing the seed in the fall and wintering the plants over. While Cabbage-plants in this latitude stand outside without any trouble, it is hard to select the best time for sowing the seed in fall, as warm weather sometimes persists so late that the plants get overgrown, and then run to seed in spring instead of heading. These plants we are now pricking out into boxes will be ready to go into the open ground the latter half of February or earlier, and will be but little if any later than the fall-set plants, while none of them will run to seed. This practice is just as good northward as here, only the sowing should be deferred, in the lati-

tude of New York, until February, and the plants hardened off so as to go out late in March. In either place it gives a chance to use the sashes on the cold frames before the Tomato-plants need them, as the Cabbage-plants can go outside just at the time the Tomato-plants should be ready to go into the frames. The frames we are now putting the Cabbage-plants in have just been cleared of Lettuce, and will have constant use from now to April.

Raleigh, N. C. *W. F. Massey.*

The Forest.

The Forestry Movement in the United States.

THIS was the title of a paper read before the late Forestry Convention in Washington by Mr. J. D. W. French, of Boston, Massachusetts. It was an exhaustive résumé of the direct efforts that have been made in this country for preserving our forests, and it was accompanied by a chronological list of the more important events in the history of the movement, such as the acts of Congress and state legislatures, the founding of various organizations, the publication of books and other literature bearing upon the subject. This last compilation, which Mr. French calls *Forestry Annals*, begins as early as 1681 with the ordinance of William Penn demanding "the reservation of one acre of trees to every five acres that were cleared," and gives a very complete record of the various occurrences, according to their dates, up to the present time. Our space will not admit the publication in full of these papers, and we can only touch upon the subjects treated. The complete record is, however, a valuable one, and will be of great use to the future historian of our forests. Mr. French first gave a graphic picture of the present condition of our woods, and began by quoting the language of an official of the state of Arkansas, who, when asked as to the state's policy regarding its timber, sent back the reply, "To get rid of the timber." If deeds speak louder than words, this has been the policy of all the states in the Union, and the priceless heritage which the Almighty planted in abundance throughout the land seems hastening, with the Indian and the buffalo, to destruction.

In speaking of the movement for preserving our forests, Mr. French said, "As early as the year 1817 an act was passed reserving lands producing Live Oaks and Red Cedars to supply timber for the navy. In 1831 another act was passed which included other timber, and imposed penalties for its violation. 'Upon this old law,' says Mr. Bowers, the Secretary of the American Forestry Association, 'having the construction of a wooden navy in view, the Government of the United States has to-day chiefly to rely in protecting its timber throughout the arid regions of the west, where none of the naval timber, which the law had in contemplation, is to be found. Can it be wondered that this act does not meet present conditions?' With all our boasted progress as a nation, we are dependent upon such an antiquated and inadequate law for the protection of our timber."

Other laws alluded to were several allowing the cutting of timber and the purchase of forest-lands, the so-called Timber Culture Act, repealed by the last Congress, and the section authorizing the President to establish reservations, of which we have several times spoken at length. The only action taken by an individual state to secure forest-reservation within its borders is that by New York, and yet the proposed Adirondack Park lacks the necessary legislation to become a realized fact.

The first attempt on the part of Congress to collect definite information in the interest of a systematic forest-policy was made in 1876, under which Dr. Franklin Hough was appointed by the Commissioner of Agriculture to make a report. This report remains a very useful book of reference, and others were afterward prepared by Mr. Hough. The Forestry Division of the Department of Agriculture was organized in 1881, and it remained under the charge of Mr. Hough for two years, when he was succeeded by Mr. N. H. Egleston. In 1886 this Division was made an organic part of the Department, and Mr. B. E. Fernow became the Chief of the Division, with whose efficient labors in various directions our readers have been kept informed.

The American Forestry Association was organized by Dr. John A. Warder in 1875, and since 1882, when the session was held in Cincinnati, there have been yearly meetings. This Association has done much valuable work in arousing public interest, in promoting the formation of local associations and in urging measures of desirable legislation by publishing from time to time its proceedings, and in other ways diffusing useful knowledge on the subject of forestry. Notwithstanding the apathy of the public and the neglect of Congress this Association has steadfastly trusted that the good sense of the American people will finally bring them to realize the importance of this work and to compel legislative action in the lines which they have indicated.

The work of various other societies is next summarized, and honorable mention is made of the individuals who have not only done practical work in the way of tree-planting, but who have been instrumental in creating a proper public sentiment.

Under the head of "Literature" Mr. French gives a brief account of the books published by Michaux, Nuttall, Emerson, Sargent and others, and a notice of periodicals like *Forest Leaves* and Garden and Forest. The establishment of the Arnold Arboretum in 1872 is noted as an important advance in furnishing object-lessons in every branch of forest-science, and the Missouri Botanical Garden is described as another agency which may be of great value in the same direction.

Mr. French considers the reservation of forest-lands without laws for their care and protection about as absurd as it would be to build a mill and then fail to supply it with machinery. "It is true, however," continued Mr. French, "that the Secretary of War, in answer to a request made by the Secretary of the Interior, has sent squads of cavalry to guard some of the parks, as the Yellowstone, the Sequoia and the Yosemite. Under the present condition of our laws there can be no better plan than to employ our army as forest-guardians. The army is eminently fitted to become custodians of our forests, and, moreover, it can be called into service immediately without going through the tedious process of passing laws. Now, if a knowledge of forestry could be added to its other desirable and available qualities, and proper laws of administration should be adopted, the problem of the care and preservation of our forests would seem to be in a fair way of solution. Why might there not be a Chair of Forestry at West Point, and a Forestry School to teach the soldiers practical forestry on one of the western reservations? Could any better use be made of a portion of the army in time of peace than to instruct it in the principles of forestry? Would not a better class of men volunteer, and would there not be fewer desertions, if forestry and other subjects of importance were taught at some of the army posts? An army post might, under these circumstances, become a school at which a soldier could learn something more than mere military routine.

"With instruction in forestry at West Point there would in a few years be a number of men competent to teach. England has been compelled, from the difficulty of obtaining properly trained men for the Indian forest-service, to establish a forestry school in connection with the Royal Indian Engineering College at Cooper's Hill. It might be a wise thing for our Government to send a few capable young men to Europe to study forestry, with the understanding that they should return to give a certain number of years to Government service. No matter what the laws are, there can be no proper forest-administration until we have men in charge who have at least some knowledge of forestry.

"The most important thing, however, at the present time, is to save the forests on the public domain at all hazards from fires and thieves, and this can be done under present laws only by the use of the army. The army, as it now exists, is quite capable of carrying out what is called the 'common-sense management,' which consists, according to Mr. Fernow, in avoiding unnecessary waste, in protecting against fire, in keeping out cattle where young growth is to be fostered, and in not preventing, by malpractice, the natural reforestation. One of the bills prepared by the American Forestry Association, and known as the Dunnell bill, authorized the employment of the army as custodians of the public forests.

"Legislation is certainly needed, and this can only be brought about by persistent agitation. This important subject should be urged upon public attention at home, on the rostrum and in the newspapers. Drill it into your Congressmen with the keen-edged sword of your votes. In this way, and in this way only, can we hope to influence public opinion."

Correspondence.

Eckford's Sweet Peas.

To the Editor of Garden and Forest:

Sir,—The fact that thirteen out of the thirty new Sweet Peas of Henry Eckford have received first-class certificates from the Royal Horticultural Society of England, gives him the pre-eminent place as a hybridizer of this flower, and therefore

some extracts from a letter recently received from him may be of interest to the lovers of this flower:

"I first took up the Sweet Pea about fifteen years ago, collecting six of the most distinct varieties I could find, carefully fertilizing the one with the other, year after year selecting the most promising for recrossing, keeping in view properties most desirable to develop—that is, color, form, substance and size. At first progress was slow, but after seven or eight years' patient working, the varieties, some of whose praises you have so well sung—Orange Prince, etc.—made their appearance. When I first began working with the Sweet Pea, experts in the art, as far as I could learn, had come to the conclusion that it could not be further improved, and in the first two or three generations of the work this appeared a fair conclusion. But I had been for many years working on the improvement of various florist flowers which had proved eminently successful, and a first rebuff did not deter me from further attempts. With some of the results you are acquainted, and there are others which, of course, can only be presented to the public as I can get stock of them. It is a great satisfaction to know from all parts of the world that the public appreciate my gems."

Mr. Eckford's Sweet Peas have striking merit, and especially the expansion of the Standard is making an essentially new flower. The new varieties for 1892 show a still nearer approach to lemon-yellow.

Ellington, Conn. *W. T. Hutchins.*

Recent Publications.

Japanese Art in the Arrangement of Flowers.—II.

In the earlier styles of the art of flower-arrangement, Mr. Conder tells us, the use of many different flowers in one composition was allowed. But this is opposed to the principles of the purer styles afterward developed. "Combinations of two or three different species are, however, very common, and especially applied to vessels having two or three openings. In all compositions, single or combined, the special nature of the different materials employed is in each case carefully kept in mind, and anything at all suggestive of the inappropriate must be scrupulously avoided." We have already noted some of the principles which govern these combinations; "but," says Mr. Conder, "important distinctions are made between trees and plants, and between land and water plants. The locality of production, whether mountain, moor or river, considerably influences the arrangement adopted. . . . In arranging two or more species in one composition variety must be secured by combining trees and plants. In the case of three lines being used, the branches of a tree should never be supported on both sides by a herbaceous plant, nor should an herb be placed in the centre with a tree-arrangement on either side. This fault is called by a term which will be better understood if freely translated as 'sandwiching.' In a triple arrangement it is plain that two branches of the same kind of growth must be used, but these must adjoin and not sandwich the remaining one. As an example of a defective arrangement may be taken a composition with Irises (herbaceous) in the centre and branches of Azalea and Camellia (trees) on either side. A correct composition would be one with a Plum-branch in the centre with a Pine-branch on one side and a Bamboo-stem on the other. . . . Herbaceous plants are regarded as female with respect to trees, which are considered male because the former are weaker and more graceful in character than the latter. A slender herb flanked on either side by tree-branches would give a weakness of effect to the centre composition, and the reverse arrangement would give too much strength to the centre and weakness to the sides. In addition to this, such arrangements would have a more or less symmetrical character, and symmetry is disliked throughout the whole of the art under consideration. Like most arbitrary rules, such directions were often departed from by the more advanced professors, and there are even recognized exceptions which are universally admitted as correct. For example, two kinds of Pine-branches may be used together with the Plum-branch in a double arrangement. . . . The branches and foliage of evergreens, and even of deciduous trees, are much used in floral compositions, the arrangement often being without a single blossom. It is, however, laid down as a general rule that no flower-bearing plant is to be employed with leaves only. Nor must plants or trees which bear leaves at blossom-time be used with flowers alone. The following are exceptions to this rule: the large-leaved Chinese Orchid has a flower, but it is very insignificant and grows below; and this plant is, therefore, technically treated as a flowerless one. The Iris Japonica is sometimes arranged for its leaves only, before the flowers appear, and it then receives a special name. The leaves of the Summer Narcissus are faded and withered before the flowers appear, and they may therefore be removed and discarded. All flower-compositions must partake as much as possible of the spirit of the season in which they are used. Spring arrangements should be straight and powerful in line, like the growth of early vegetation; summer arrangements must be full and spreading; while those of autumn should be spare and lean, and those of winter withered and dreary."

Here again we see how diametrically opposed to western ideas are the ideas of the Japanese. To us flowers are most beautiful and most precious, as a rule, when most conspicuously out of season; and it is safe to say that a vase full of Roses in midwinter gives the average American or European more delight than it would in midsummer. To us the sentiment of a flower merely seems increased by the unexpectedness of its appearance, and one which in winter carries us back to the sun and breezes of June would never be objected to on the score of inappropriateness. In truth, we have no conception of what the Japanese mean by appropriateness, either in this or in any other art; and when we try to understand their point of view, it sometimes seems as though so many recondite, philosophical and emblematical considerations preface their enjoyment of the works of nature that this enjoyment cannot be as fresh and spontaneous as it is with us. But such ideas are, of course, quite mistaken. It is a question whether we shall ever rise to such a many-sided, delicately developed love for the works of nature as the Japanese possess; but we may be sure that every added meaning they read into their flower-arrangements increases, not lessens, the pleasure they confer; and that every added degree of keenness and fineness in æsthetic perception has the same effect.

Of course, color as well as form is considered by the Japanese in their flower-arrangements, and also the shape and character of the leaves, no less than the direction of the stems which bear them. Moreover, the flower-vase is almost as important as its contents, and the relationship of the two is a special and complicated subject of study. There are V-shaped vessels and broad ones, vessels for water-plants, flower-baskets and Bamboo vases, hooked vessels, suspended vessels, flower-chariots, and so on, and in each of these classes there are many varieties, and the choice of each is dictated by the special character of the plants employed or the special effect desired in their combination. To secure plants in the exact positions desired, from which a hair-breadth of deviation would seem calamitous to a delicate eye, special flower-fasteners are required, and these are often made of bronze and given ornamental shapes appropriate to different kinds of plants. Flower-trays and stands must also be carefully considered, as the effect of a beautiful arrangement placed in an appropriate vase might be ruined if it were set on an inappropriate support. Mr. Conder gives many pages of cuts showing flower-vases and stands with and without flowers. Their variety and the subtile distinctions the Japanese draw between them may confuse the occidental mind to such an extent that it will seem, indeed, as though years of patient study would be needful before one should dare to introduce a flower as decoration in a room. Yet even this is not the end of the study of the Japanese. The position of flowers in rooms is another vital point of consideration, and one to which Mr. Conder devotes a special chapter. Then he gives a long chapter to the ceremonial uses of flowers and their significance in the elaborate etiquette of the people. What, one wonders, would the guest in an American house think if, as a special compliment, he were invited to make an extemporary arrangement of flowers, being presented for the purpose with certain suitable flower-stems or blossom-clad branches and all the necessary utensils and implements? Special flowers are named for betrothals, for wedding festivities, for coming-of-age celebrations, for promotions in rank, for the ceremony of religious retirement, for old-age celebrations, for farewell gatherings, for presentation to the sick, for death anniversaries, for house-warmings, for duty ceremonials, for poetry meetings, for incense meetings, for placing before household shrines, for use when rain or fine weather is prayed for, and for that favorite pastime of the Japanese which they call moon-viewing. Nothing could better explain the delicacy of the Japanese artistic sense than Mr. Conder's little description of this last-named ceremony and its floral accompaniment. "The more important dwellings," he says, "have a special chamber with open galleries, from which the sight of the moon-lit landscape can be enjoyed. The floral arrangement occupies the recess of the chamber, and has, of course, no real connection with the outside prospect, but in the flower-composition itself the idea of the moon-lit

landscape is expressed. A branch of a Pine-tree is used, and between the principal and secondary lines of the composition a special branch is introduced, fancifully called the moon-shadow branch; a gap is also formed between the foliage, bounded by the special branch called the dividing-branch. In the composition the idea is to suggest both the opening through which the moon can be partially observed, and the dark branch which appears to cross its surface. To fully appreciate the analogy one must be familiar with the scenery of Japan, and have seen the irregular Pine-trees standing out against the starry heavens."

The concluding portion of Mr. Conder's book is filled with practical examples. Many plates illustrate arrangements of more or less complexity, and each is carefully explained and the reason of its beauty pointed out. As we look through these pictures we are more and more impressed with the fact that, to a Japanese, our own methods of flower-arrangement must indeed seem crude, barbarous and confused. It is impossible to imagine western people having the patience to develop an art of flower-arrangement so elaborate and suggestive as that of the Japanese; nor is our mental temper such that we could ever care, as they do, for recondite, philosophical, historical rules and sentimental meanings to be expressed by flower-compositions. Nevertheless, the artistic aim of the Japanese artist is never subordinated to any other, and a very keen feeling for beauty really underlies most of the distinctions which he explains in ways which to us seem fancifully intellectual rather than æsthetic. It is a pity, therefore, that Mr. Conder's book should be so large and costly that we cannot expect it to have much direct influence upon public tastes in this country and in England. But many of its lessons will certainly be popularized in the pages of horticultural papers. We wish that his illustrations might be largely reproduced, for, of course, pictures are needed to point the meaning of his words; but, unfortunately, his title-page bears the legend "All rights reserved," which, we presume, makes it impossible to copy his cuts without special permission.

There has here been no attempt, we repeat, really to review his book, which is an admirable monument to his own industry and intelligence, as well as to the artistic qualities of the Japanese. The value of such a work depends upon each of the details it explains and upon their full and orderly exposition. All we have attempted to do is to show by a few quotations how interesting and novel it is, and to recommend its careful perusal by any one who may be fortunate enough to find a copy at hand.

Notes.

We learn from a Washington dispatch that President Harrison has issued a proclamation reserving from entry the Pecos River tract, in New Mexico, which is alluded to in another page of this issue.

In Japan the Pæony is cultivated in long sheltered beds, generally lying beneath one of the chief rooms in the house, from which its splendid blossoms can be surveyed. It is the favorite flower of the upper classes, and, being cultivated to produce enormous flowers, often bears blossoms nine inches or more in diameter.

When too little water is given to house-plants the wilted and drooping leaves soon indicate what the trouble is, and it is very easy to apply the remedy before any serious injury is done. When too much water is given, however, the injury is not discovered until perhaps the leaves turn yellow and begin to fall, and it is then sometimes too late to repair the damage. This means that it is easier to injure house-plants beyond remedy by giving too much water than by giving too little.

Monsieur Henry Lévêque de Vilmorin has been elected First Vice-President of La Société Nationale d'Horticulture de France in place of the late Auguste Hardy. This is the most important horticultural office in France, as the President of the society, usually some distinguished statesman, is merely a figure-head, the real administration of the affairs of the society devolving on the First Vice-President. The society is to be congratulated in being able to place itself under the direction of one of the best-equipped and most famous horticulturists of his day, and the worthy representative of a family which has been distinguished for generations for its scientific attainments, its commercial enterprise and integrity, and its zeal in worthy effort to ameliorate every rural art and science.

According to Professor Massey the central Oak-belt of North Carolina is peculiarly the home of the Peach, just as the mountain region is of the Apple. This is especially true of the upland sandy ridges which rise some five hundred or six hundred feet above the sea, and which, while in the geographical limits of the Oak-belt, are really Pine-lands. Professor Emery, of the North Carolina Experiment Station, while rambling last year through the forest near a health-resort known as Southern Pines, came across what had once been a Peach-orchard, but which had grown up with Pines twenty or thirty years old. Yet here among these conifers were a number of the old Peach-trees, with trunks measuring nearly a foot in diameter and full of fruit. Most of the trees had been blown over, but even these had put out new heads, which were full of fruit. In Davis County, between the forks of the Yadkin River, wild Peach-trees are abundant along the fence-rows and in old sedge-fields, and these bear large crops with no cultivation or care.

In an article on Christmas supplies in the *Journal of Horticulture*, London, it is said that one of the most striking features in the markets is afforded by the numerous auction sales of imported fruit, and is a matter of surprise how such quantities can be disposed of, and what becomes of home-grown fruits. Thousands of baskets of American apples have been received and sold within the past few days, bright, even, well-selected and well-packed fruits, which would command purchasers anywhere, the Newtown Pippins and Baldwins being the favorites. Side by side with the American apples were bushels of English apples, and the contrast was almost painful. These last were irregular, unselected fruits, seemingly shot into baskets without heed and care, handsome fruits and rubbish intermingled, with the result of a very low average. This is one great defect of English growers, and however the cultivation of fruit may be improved, it will never produce the proper results until the cognate matters of packing and displaying receive due attention.

Mr. Romeyn S. Hough writes us that in a copy of Evelyn's *Silva*, which bears the date of 1664, is a marginal note which was penned perhaps a century ago by some former owner of the book whose name is lost. As it relates to American trees and forcibly illustrates the value of tree-planting, it will doubtless interest our readers: "The false Acacia in North America (Robinia Pseudo Acacia, Linn.), vid. Monthly Review for April, 1788, Memoirs of Agriculture published by the Royal Society of Agriculture at Paris; Memoir 9, by Monsieur Saint Jean de Crève Cœur. A farmer on Long Island planted in the year of his marriage an old worn-out field of fourteen acres with this Acacia, resolving not to touch it till his first child should be of age to marry. His eldest son, when twenty-two years old, anxious to settle by himself, applied for assistance to his father, who then sold out of this wood (to a ship-master) timber to the value of 6,250 French livres, about £260 sterling, which he gave to his son to purchase a plantation in the County of Lancaster. Three years afterward he sold as much as brought the same sum, with which he apportioned a daughter. In fine, without any other resources than the sale of wood from these fourteen acres, planted in the year of his marriage, he has provided for all his family, and the wood continues to be still equally productive."

The January number of the *American Agriculturist* celebrates the semi-centennial anniversary of its establishment by a series of articles on the great progress which has been made during the last fifty years in agricultural science and practice in America. Interesting articles for this number have been prepared by experts to show the improvement in agricultural machinery and methods of cultivation, in the breeds of domestic animals and poultry and in the different varieties of grains, fruits, vegetables and flowering-plants. There are articles, too, on such comparatively new industries as the export trade in beef, the production of beet-sugar and the growing of vegetables under glass. Dr. Riley writes of the important position which applied entomology now holds in agricultural practice; Dr. Halstead of the new methods of treating fungous diseases of plants, and Dr. Jenkins of fertilizers and their increased use, while Mr. Berckmans discusses the development of pomology, and Mr. Ellwanger records the growth of the nursery industry. Altogether the present condition of American agriculture, when compared with what it was fifty years ago, warrants Mr. C. Wood Davis' prophecy of a brilliant future. This issue of the *Agriculturist* also contains portraits of all its editors, beginning with Mr. A. B. Allen, who still lives at the age of ninety years, and was able to contribute an article to the jubilee number of the magazine which he founded in 1842. Our readers will unite with us in wishing a long continuance of prosperous life to the magazine under the efficient conduct of Dr. Hexamer, who now guides its policy.